A CROSS-SECTIONAL AND LONGITUDINAL STUDY ON THE ASSOCIATION BETWEEN STATIN USE AND HEARING IMPAIRMENT IN THE ROTTERDAM STUDY POPULATION

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ABSTRACT

Background: Statin is one of the main treatments used for cardiovascular diseases, which is a major health burden in the world. However, there has been some information about the safety of statin on the auditory system that has raised concerns among clinicians and patients.

Aim: The aim of this study is to evaluate the association between the use of statin with hearing thresholds and tinnitus in the general population.

Methods: Cross-sectional (n= 3622) and longitudinal analyses (n=548) were performed within the Rotterdam Study, an ongoing large prospective cohort study of individuals aged ≥ 45 years living in Rotterdam, the Netherlands. In cross-sectional analyses, we used multivariable logistic regression models for the association between statin and tinnitus, statin and hearing loss (pure tone audiogram (PTA) 0.25–8 ≥ 35dB) and multivariable linear regression models for the association between statin and two different hearing thresholds (PTA 0.25 – 8 and PTA 2 – 8). In longitudinal analyses, we used repeated measurements analysis with marginal models for the association between statin and incident tinnitus, statin and incident hearing loss, and linear mixed models for the association between statin with two different hearing thresholds between two timepoints. The statistical models were adjusted for age, sex, educational level, cholesterol serum level, body mass index (BMI), systolic blood pressure, hypertension, diabetes, alcohol consumption and smoking. Exposure to statin was categorized into never-users and ever-users with number of days using.

Results: In the final adjusted models, ever-users of statin were associated with a 38% higher risk of prevalent tinnitus (OR = 1.38, 95% Cl 1.06 – 1.79, p = 0.016). Statin use in between two assessments was associated with more than a doubled increased risk of

incident tinnitus (OR=2.62, 95% CI = 1.45 – 4.72, p = 0.001). We could not find a significant correlation between statin and hearing thresholds in both cross-sectional and longitudinal analyses.

Conclusions: This study confirms that there is a significant association between statin with both prevalent and incident tinnitus in statin users. The found association needs further investigation as tinnitus may be an unwanted side effect of statin. If so, doctors should be aware of this possible health risk.

Modes of Presentation: Poster presentation

Biography:

Minh Hang Duong is now working as a research doctor in Pasteur Institute Ho Chi Minh City, Vietnam. She earned her Medical Doctor degree from University of Medicine and Pharmacy at Ho Chi Minh City in 2019. In September 2022, she just received a Research master degree from Netherlands Institute for Health Sciences (NIHES), Erasmus University Medical Center, Rotterdam, The Netherlands in Clinical research. During her study, she received several exchange scholarships to Australia (Department of Otolaryngology, Concord Repatriation General Hospital in Sydney), Japan (Department of Microbiology, University of Tsukuba), and Erasmus MC Graduate scholarship for her 2-year Master study. This project is also her Master's graduation project under the supervision of Dr. André Goedegebure.

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